

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

WHAT IS CLAIMED IS:

1. (Currently Amended) A method of determining timing clearance between a valve stem and a moving member using an electromagnetic actuator comprising electromagnetic displacement means which comprise electromagnets for moving the moving member between an extreme closed position and an extreme open position, the electromagnets of the electromagnetic displacement means being controlled by servo-control means on the basis of a reference electrical characteristic, the method comprising:

controlling the electromagnetic displacement means to obtain a substantially constant displacement speed for the moving member between the extreme closed position and the extreme open position;

obtaining values of the reference electrical characteristic for intermediate positions of the moving member; and

detecting an intermediate position at which the reference electrical characteristic is subject to a sudden change.

2. (Currently Amended) A method according to claim 1, wherein detecting an intermediate position at which the reference electrical characteristic is subject to a sudden change comprises computing at least one derivative of the reference electrical characteristic relative to at least one position of the moving member..

3. (Currently Amended) A method according to claim 2 wherein the reference electrical characteristic is a current.

4. (Currently Amended) A method according to claim 3, wherein the displacement speed of the moving member is maintained at a speed that is substantially constant over a

fraction of the movement of the moving member corresponding to a maximum timing clearance.

5. (New) A method according to claim 1 wherein the reference electrical characteristic is a current.

6. (New) A method according to claim 1 wherein the reference electrical characteristic is a voltage.

7. (New) A method according to claim 1 wherein the valve stem is an engine valve stem.

8. (New) A method according to claim 2 wherein the reference electrical characteristic is a voltage.

9. (New) A method according to claim 2 wherein the displacement speed of the moving member is maintained at a speed that is substantially constant over a fraction of the movement of the moving member corresponding to a maximum timing clearance.

10. (New) A method according to claim 3 wherein the displacement speed of the moving member is maintained at a speed that is substantially constant over a fraction of the movement of the moving member corresponding to a maximum timing clearance.

11. (New) A method of determining timing clearance between a valve stem and a moving member using an electromagnetic actuator comprising electromagnets, the actuator being controlled on the basis of a reference electrical characteristic, the method comprising:

controlling an electromagnet to obtain a displacement speed for a moving member as the moving member moves from one of a closed position and an open position towards the other one of the open position and the closed position;

obtaining values of a reference electrical characteristic for intermediate positions of the moving member; and

detecting an intermediate position at which the reference electrical characteristic is subject to a sudden change.

12. (New) A method according to claim 11, wherein detecting an intermediate position at which the reference electrical characteristic is subject to a sudden change comprises computing at least one derivative of the reference electrical characteristic relative to at least one position of the moving member.

13. (New) A method according to claim 11, wherein detecting an intermediate position at

which the reference electrical characteristic is subject to a sudden change comprises:

computing at least one derivative of the reference electrical characteristic relative to at least one position of the moving member; and

determining the intermediate position corresponding to the point of the peak derivative value.

14. (New) A method according to claim 11 wherein the reference electrical characteristic is a current.

15. (New) A method according to claim 11 wherein the valve stem is an engine valve stem.

16. (New) A method according to claim 11 wherein controlling the electromagnets is performed by a servo-controller.

17. (New) A method according to claim 11 wherein the displacement speed of the moving member is maintained at a speed that is substantially constant over the entire movement of the moving member as the moving member moves from one of a closed position or an open position towards the other one of an open position or a closed position.

18. (New) A method according to claim 11 wherein the displacement speed of the moving member is maintained at a speed that is substantially constant over a fraction of the movement of the moving member corresponding to a maximum timing clearance.

19. (New) A method according to claim 11 wherein obtaining values of the reference electrical characteristic for intermediate positions of the moving member is performed by a servo-controller.

20. (New) A method according to claim 11 wherein obtaining values of the reference electrical characteristic for intermediate positions of the moving member is performed by a measuring device.

21. (New) A method according to claim 11 wherein obtaining values of the reference electrical characteristic for intermediate positions of the moving member is performed by a detection device.

22. (New) A method according to claim 11, further comprising deducing a timing clearance.

23. (New) A method according to claim 22, wherein deducing the timing clearance is based on the closed position and the intermediate position.

24. (New) A method according to claim 22, wherein deducing the timing clearance is based on the open position and the intermediate position.

25. (New) A method according to claim 12 wherein the reference electrical characteristic is a current.

26. (New) A method according to claim 12 wherein the displacement speed of the moving member is maintained at a speed that is substantially constant over the entire movement of the moving member as the moving member moves from one of a closed position or an open position towards the other one of an open position or a closed position.

27. (New) A method according to claim 12 wherein the displacement speed of the moving member is maintained at a speed that is substantially constant over a fraction of the movement of the moving member corresponding to a maximum timing clearance.